



Draft Health Advisory: Safe Eating Guidelines for Fish and Shellfish from the Lower Cosumnes and Lower Mokelumne Rivers (Sacramento and San Joaquin Counties)

a fact sheet by
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

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Why has OEHHA developed a draft health advisory for fish from the lower Cosumnes and lower Mokelumne rivers?

Recent studies by the State Water Resources Control Board, the CALFED Mercury Project and the University of California – Davis have indicated that some species of fish in the lower Cosumnes and lower Mokelumne rivers contain elevated levels of mercury and could pose a health risk to people who eat them frequently. The Office of Environmental Health Hazard Assessment (OEHHA) has evaluated the health effects of eating fish from these rivers and has issued a draft report and health advisory with “safe eating guidelines” for the consumption of fish from these water bodies. For the purpose of this advisory, the lower Cosumnes River is defined as the entirety of the river within Sacramento County while the lower Mokelumne River is defined as both forks of the Mokelumne River downstream of Camanche Reservoir to the confluence of the San Joaquin River.

The draft safe eating guidelines include an “enjoy” table that identifies, if available, fish containing low levels of mercury that can be eaten two or three times a week. The guidelines also include an “eat in moderation” table, with fish whose consumption should be limited to one meal a week or less and an “avoid” table, with fish whose consumption should be restricted to one meal a month or less. One set of guidelines applies to women of childbearing age and children age 17 and younger, who are particularly sensitive to methylmercury (the most prevalent and toxic form of mercury in fish). A second set applies to women beyond their childbearing years and men.

Because methylmercury affects neurological development, women of childbearing age and children age 17 and younger should carefully follow guidelines for eating these fish.

Does the water in the lake or creek pose a hazard?

No. As explained below, mercury tends to accumulate in fish, but not in the water itself. Physical contact with the water is safe.

Why is mercury found in fish from this region?

Mercury contamination of fish is a global problem. Emissions from coal-burning power plants and volcanoes release mercury into the air where it can be carried worldwide before being deposited in oceans, lakes, and rivers. In northern California water bodies, however, mercury is also a legacy of gold and mercury mining activities that began during the Gold Rush. Gold miners used mercury to extract gold from mined materials and discharged the waste into nearby water bodies, such as the Cosumnes and Mokelumne rivers, where the mercury accumulated in the sediment.

Once mercury accumulates in bottom sediments in lakes or other water bodies, bacteria convert it into a more toxic form, known as methylmercury, which fish take in from their diet. Methylmercury can build up in fish to concentrations many thousands of times greater than

mercury levels in the surrounding water. Because methylmercury accumulates in fish slowly over time, larger fish of a species usually have higher concentrations of methylmercury than smaller fish from the same water body. Predatory fish, such as bass, generally contain more methylmercury than non-predatory fish, such as trout.

What are the human health effects of methylmercury found in these fish?

Developing fetuses and children are especially sensitive to methylmercury. Pregnant women and nursing mothers can pass on methylmercury to their fetuses or infants through the placenta and through breast milk. Excessive exposure to methylmercury can affect the nervous system in children, leading to subtle decreases in learning ability, language skills, attention, and memory. These effects may occur following exposure through adolescence as the nervous system continues to develop during this time. For this reason, a more conservative set of guidelines applies to women of childbearing years and children up to and including age 17.

In adults, the most subtle symptoms of methylmercury toxicity are numbness and tingling sensations in the hands and feet or around the mouth. The levels of methylmercury found in fish from these lakes and rivers should not result in the health effects described above if the proposed guidelines are followed.

Should I stop eating all fish from these water bodies?

Women of childbearing age and children aged 17 and younger are recommended to avoid consuming fish or crayfish from the lower Cosumnes River. This population group should be especially careful not to eat large predatory fish such as largemouth, smallmouth or spotted bass or pikeminnow from this river.

Women of childbearing age and children aged 17 and younger are also recommended to avoid eating fish species from the lower Mokelumne River. This population group should limit their consumption of crayfish from the lower Mokelumne River to no more than once a week.

There are more options for women beyond childbearing age and men. The draft safe eating guidelines allow for women beyond childbearing age and men to eat as many as two meals a week of bluegill or redear sunfish from the lower Cosumnes River; or two meals a week of crayfish, bluegill, Sacramento sucker, or white catfish from the lower Mokelumne River, provided no other fish are eaten that week. Women beyond childbearing age and men should avoid eating largemouth, smallmouth or spotted bass or Sacramento pikeminnow from either the lower Cosumnes or lower Mokelumne rivers.

All consumers should follow the Delta striped bass advisory for striped bass caught in either river. This advisory recommends that women of childbearing age and children 17 years and younger eat striped bass no more than one meal a month and none over 27 inches. Women beyond childbearing age and men should eat no more than two meals a month of striped bass and none over 35 inches.

Consumers should choose fish low in mercury that can be eaten up to two servings a week, such as those listed at the bottom of pages 4 and 5, and in the “enjoy” table for women beyond childbearing age and men.

Because almost all ocean and freshwater fish contain some level of methylmercury, consider your total fish consumption when making choices about how much and which types of fish to eat. For example, the federal government advises women of childbearing age and children not to eat shark, swordfish, king mackerel, or tilefish, because these ocean species tend to have high mercury levels. Women of childbearing age and children can safely eat up to two meals a week of a variety of commercial fish, but only if they do not eat sport fish from local water bodies in

the same time period. If you eat fish caught from other water bodies in California, check whether OEHHA has issued an advisory for that location. With the exception of river-run or ocean salmon or steelhead, which generally contain low levels of contaminants, fish caught from places without an advisory should be eaten in limited amounts.

What are the next steps in OEHHA's evaluation?

OEHHA is seeking public comment on the draft safe eating guidelines for the lower Cosumnes River and the lower Mokelumne River, and the draft report that described how they were developed. OEHHA staff scientists will make a presentation, answer questions and accept comments on the draft advisory at a public workshop at 6:45 p.m. on May 11, 2006, at the Lodi Library, Bud Sullivan Room, 201 West Locust Street, Lodi, California. Written comments can also be sent directly to Dr. Susan Klasing at the address below until May 29th, 2006. OEHHA will review all comments before issuing a final report and safe eating guidelines.

Where can I get more information?

For information on mercury and other contaminants in sport fish in California, contact:

Office of Environmental Health Hazard Assessment
Pesticide and Environmental Toxicology Branch
P.O. Box 4010, MS 12B, Sacramento, CA 95812-4010
(916) 327-7319 or <http://www.oehha.ca.gov>

For information on mercury in commercial fish, contact:

U. S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
1 (888) SAFEFOOD or <http://www.cfsan.fda.gov>

SAFE EATING GUIDELINES

FISH AND SHELLFISH CONSUMPTION FROM THE LOWER COSUMNES RIVER AND NEARBY CREEKS AND SLOUGHS

Fish and shellfish are nutritious and should be part of a healthy, balanced diet. It is important, however, to choose your fish wisely. The American Heart Association recommends healthy adults eat at least two meals of fish a week. OEHHA recommends that you choose fish to eat that are low in mercury such as those in the "Enjoy" category. Because many types of fish from the lower Cosumnes River contain higher levels of mercury, OEHHA provides the recommendations below that you can follow to reduce the risks from exposure to methylmercury in fish.



Women of childbearing age, pregnant or breastfeeding women, and children 17 years and under

AVOID DO NOT EAT MORE THAN THE AMOUNT LISTED BELOW:	
DO NOT EAT	Largemouth, smallmouth or spotted bass; or Sacramento pikeminnow
NO MORE THAN 1 MEAL A MONTH	All other fish or crayfish species*

*Asiatic clams may be eaten up to 3 times a week



Women beyond childbearing age and men

ENJOY UP TO 2 MEALS A WEEK
Bluegill or redear sunfish or Asiatic clams
EAT IN MODERATION NO MORE THAN 1 MEAL A WEEK
Crayfish or Sacramento sucker or white catfish
AVOID NO MORE THAN 1 MEAL A MONTH
Largemouth, smallmouth or spotted bass; or Sacramento pikeminnow

- **EVERYONE FOLLOW THE STRIPED BASS ADVISORY FOR DELTA WATER BODIES.** WOMEN OF CHILDBEARING AGE AND CHILDREN 17 YEARS AND YOUNGER: no more than one meal per month and none over 27 inches. WOMEN BEYOND CHILDBEARING AGE AND MEN: no more than two meals per month and none over 35 inches.
- **CONTACT WITH THE WATER IS SAFE.**
- **EAT SMALLER FISH OF LEGAL SIZE.** Fish build up mercury in their bodies as they grow.
- **MEAL SIZE DEPENDS ON BODY WEIGHT.** Meals are based on a 160 lb adult eating 8 ounces of fish (6 ounces after cooking)—about the size of two decks of cards. If you weigh less than 160 lbs, eat smaller portions of fish. Serve smaller meals to children.
- **DO NOT EAT MORE THAN ONE OF THE LISTED FISH SPECIES DURING THE SAME TIME PERIOD** unless you are only eating from the Enjoy (green) category. If you eat fish from one place, following the advisory, avoid eating fish from other sources during the same time period.
- **CONSIDER THE FISH YOU BUY FROM STORES AND RESTAURANTS.** Women of childbearing age and children can safely eat up to 2 meals a week of a variety of fish purchased from a store or restaurant, **OR** use this guide for eating fish caught from this water body. In a week when you eat 2 meals of fish purchased from stores or restaurants, avoid eating fish caught from a local water body. Commercial fish such as shrimp, king crab, scallops, farmed catfish, wild ocean salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury. Women of childbearing age and children should not eat SHARK OR SWORDFISH.
- **FISH FROM OTHER WATER BODIES MAY ALSO CONTAIN MERCURY.** Not all water bodies in California have been tested. With the exception of ocean or river-run salmon and steelhead, which generally contain low levels of contaminants, fish caught from places without an advisory should be eaten in limited amounts.

SAFE EATING GUIDELINES

FISH AND SHELLFISH CONSUMPTION FROM THE LOWER MOKELUMNE RIVER AND NEARBY CREEKS AND SLOUGHS

Fish and shellfish are nutritious and should be part of a healthy, balanced diet. It is important, however, to choose your fish wisely. The American Heart Association recommends healthy adults eat at least two meals of fish a week. OEHHA recommends that you choose fish to eat that are low in mercury such as those in the "Enjoy" category. Because many types of fish from the lower Mokelumne River contain higher levels of mercury, OEHHA provides the recommendations below that you can follow to reduce the risks from exposure to methylmercury in fish.



Women of childbearing age, pregnant or breastfeeding women, and children 17 years and under

EAT IN MODERATION NO MORE THAN 1 MEAL A WEEK
Crayfish*
AVOID DO NOT EAT MORE THAN 1 MEAL A MONTH
All fish species

*Asiatic clams may be eaten up to 3 times a week



Women beyond childbearing age and men

ENJOY UP TO 2 MEALS A WEEK
Crayfish or bluegill or Sacramento sucker or white catfish or Asiatic clams*
AVOID NO MORE THAN 1 MEAL A MONTH
Largemouth, smallmouth or spotted bass; or Sacramento pikeminnow

*Asiatic clams may be eaten up to 3 times a week

- **EVERYONE FOLLOW THE STRIPED BASS ADVISORY FOR DELTA WATER BODIES.** WOMEN OF CHILDBEARING AGE AND CHILDREN 17 YEARS AND YOUNGER: no more than one meal per month and none over 27 inches. WOMEN BEYOND CHILDBEARING AGE AND MEN: no more than two meals per month and none over 35 inches.
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- **CONSIDER THE FISH YOU BUY FROM STORES AND RESTAURANTS.** Women of childbearing age and children can safely eat up to 2 meals a week of a variety of fish purchased from a store or restaurant, **OR** use this guide for eating fish caught from this water body. In a week when you eat 2 meals of fish purchased from stores or restaurants, avoid eating fish caught from a local water body. Commercial fish such as shrimp, king crab, scallops, farmed catfish, wild ocean salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury. Women of childbearing age and children should not eat SHARK OR SWORDFISH.
- **FISH FROM OTHER WATER BODIES MAY ALSO CONTAIN MERCURY.** Not all water bodies in California have been tested. With the exception of ocean or river-run salmon and steelhead, which generally contain low levels of contaminants, fish caught from places without an advisory should be eaten in limited amounts.